eyeheight

# DT-2

video index and WSS transcoder

# user manual

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# 1 System Overview

This manual describes the function of the DT-2. This unit decodes and encodes Video Index and WSS in an SDI video signal.

## 1.1 The DT-2 Product

This manual describes the function of the DT-2. This unit is a Video Index and WSS transcoder. It is a comprehensive answer to Video Index (VI) and Wide Screen Signalling (WSS) encoding and decoding. Full functionality of encoding and decoding on one card allows more flexibility. All known data formats are supported.

The unit is an upgrade of the Eyeheight ADP-1000 uniBox and has been designed to be move user configurable as well as including new features such as user configurable blanking generators and a flexible Loss-ident system.

The main features are :-

- Encodes VI (line11) and WSS (Line 23) data.
- Encodes Data from GPI/RS232/Fixed input.
- Converts WSS to VI or VI to WSS.
- Decodes VI (line11) and WSS (line 23) data.
- Decodes data to GPI/RS232/Panel Display
- WSS to UK or ETSI Standards.
- VI to Class 1 and Class 2 data with optional Class 3 (user data).
- One ½ line and two configurable blanking areas enabled data in any areas of the screen to be blanked.
- Configurable Loss Ident provides a test signal background with optional user Ident if video input fails

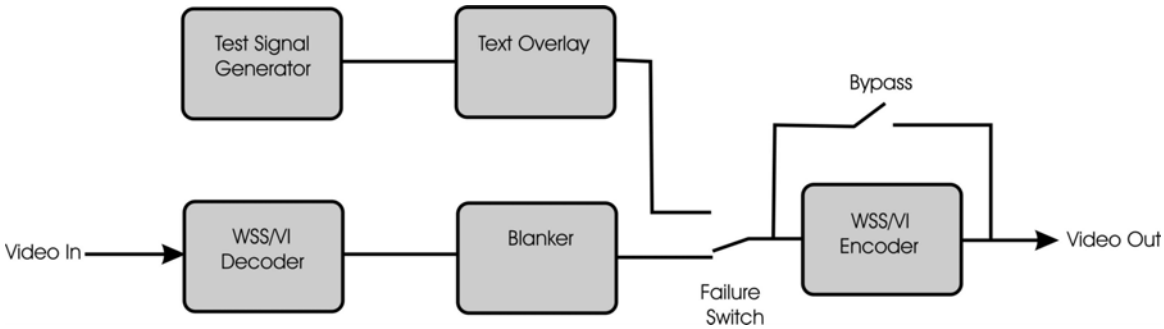


**Figure 1 DT-2 System Block Diagram**



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## 1.2 Fundamentals of Operation

The DT-2 unit is primarily a data trans-coder taking AFD & AR data from one source format and trans-coding it to a destination format. Each destination format can be separately configured and all destinations can be active simultaneously.

### 1.2.1 Available AR & AFD Source Formats

Wide-Screen Signalling (WSS) extraction in either ETSI format (AR info only) or UK Line 23 format (AR & AFD info)

Video Index (VI) extraction of Class 1.1, first Octet (AR & AFD info)

GPI Input either 7 bit latched or 8 bit linear interface (AR and/or AFD info depending on GPI coding selection)

RS-232 serial communications (AR & AFD info)

User panel configuration (AR & AFD info)

### 1.2.2 Available AFD & AR Destination Formats

Wide-Screen Signalling (WSS) insertion in either ETSI format (AR info only) or UK Line 23 (UK_L23) format (AR & AFD info)

Video Index (VI) insertion Class 1.1, first Octet (AR & AFD info)

GPI's 8 bit linear interface (AR and or AFD info depending on GPI coding selection)

RS-232 serial communications (AR & AFD info)

User panel display (independent AR & AFD info for VI and WSS inserters)

### 1.2.3 VI & WSS Additional Data Handling

In addition to its primary role as an AR & AFD trans-coder the DT-2 also allows control over all of the extra data available in the ETSI WSS, UK_L23 WSS and VI signals when using identical source and destination formats. The DT-2 Setup software and DG-9 dongle are required to allow extra data to passed or forced to known values on a bit by bit basis. By default all extraneous data is passed as is if present. When using different source and destination formats all extra data in the destination format is forced to '0'.

### 1.2.4 Failsafe Features

The DT-2 also incorporates a number of failsafe features that include an internally generated ident signal in the event of a loss of input video and a fall-back source option for each destination format in the event that no data is present on the selected primary source.



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### 1.2.5 Native AR & AFD representation

The DT-2 represents the AR & AFD data as two 3 bit binary numbers corresponding to AR & AFD values from 0-7. In situations where the AR & AFD data is combined the data is represented as a 6 bit binary concatenation of the AR & AFD data with the AR data represented by bits 5-3 and the AFD by bits 2-0.

### 1.2.6 User AR & AFD representation

The DT-2 enables users to map the native AR & AFD binary representations to more meaningful text representations by selecting sets of AR names and AFD names. The name sets and the names of the name sets themselves can be modified using the DT-2 Setup software and dongle.

| | Number | Defn'd | ETSI | BBC | User 1 | User 2 |
|---|---|---|---|---|---|---|
| AR=000 | AR =0 | NoInfo | 4:3 | AR =8 | AR =0 | AR =0 |
| AR=001 | AR =1 | 4x3 –5 | 14:9 C | AR =9 | AR =1 | AR =1 |
| AR=010 | AR =2 | 4x3 –6 | 14:9 T | AR =10 | AR =2 | AR =2 |
| AR=011 | AR =3 | Reserv | 16:9 C | AR =11 | AR =3 | AR =3 |
| AR=100 | AR =4 | Reserv | 16:9 T | AR =12 | AR =4 | AR =4 |
| AR=101 | AR =5 | 16x9-5 | >16:9C | AR =13 | AR =5 | AR =5 |
| AR=110 | AR =6 | 16x9-6 | 4:3SPC | AR =14 | AR =6 | AR =6 |
| AR=111 | AR =7 | Reserv | 16:9An | AR =15 | AR =7 | AR =7 |

**Figure 2 Text Representations of AR for Built-In AR Name Sets**

| | Number | Defn'd | BBC | User 1 | User 2 | User 3 |
|---|---|---|---|---|---|---|
| AFD=000 | AFD =0 | Raster | FAULT | AFD =0 | AFD =0 | AFD =0 |
| AFD=001 | AFD =1 | 4x3 | 12F12C | AFD =1 | AFD =1 | AFD =1 |
| AFD=010 | AFD =2 | 16x9 | 16F16A | AFD =2 | AFD =2 | AFD =2 |
| AFD=011 | AFD =3 | 14x9 | 14P16B | AFD =3 | AFD =3 | AFD =3 |
| AFD=100 | AFD =4 | Reserv | FAULT | AFD =4 | AFD =4 | AFD =4 |
| AFD=101 | AFD =5 | 4x3STP | 14L12B | AFD =5 | AFD =5 | AFD =5 |
| AFD=110 | AFD =6 | 16x9SP | 16F16B | AFD =6 | AFD =6 | AFD =6 |
| AFD=111 | AFD =7 | Reserv | 16F16C | AFD =7 | AFD =7 | AFD =7 |



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**Figure 3 Text Representations of AFD for Built-In AFD Name Sets**

N.B. changing the AR or AFD names does not alter the underlying binary representation or the data handled by the destination format only the way that data is represented to the user via the panel.

### I.2.7 GPIs – Latched Vs Linear

The GPI inputs can be configured to operate in either 8 bit linear mode where the bits represent an 8 bit binary encoded value with GPI1 = bit 0 and GPI8 = bit 7 or a 7 bit latched mode where GPI1-7 represent a 7 bit binary encoded value but the value is latched into the DT-2 on the rising edge of GPI8 which does not contribute to the binary encoded value.

### I.2.8 Built-In Mapping Tables

The DT-2 uses mapping tables to control how source data is transformed to destination data. The source data essentially provides an address to mapping table and the data stored at that location in the mapping table is used as data by the destination.

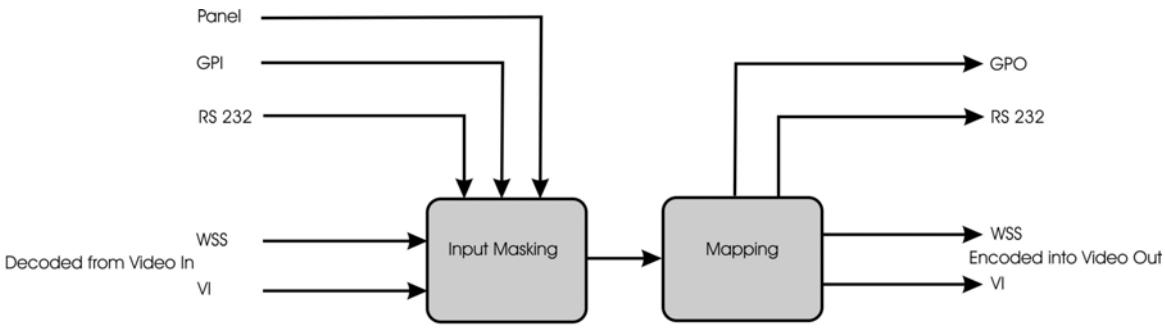


**Figure 4 Mapping Table Configuration**

The DT-2 has the following 6 built-in mapping tables:-

#### OFF

All source data maps to all ‘0’s

#### BYPASS

Source data is unchanged by the mapping table

#### AFD IP

Designed to allow the GPI inputs to provide the AFD data as highest-bit-takes-precedence i.e. if the highest GPI input set is GPI4(bit 3 as GPI’s number 1 to 8) then the AFD is taken to be 4 (“100”) irrespective of the lower GPI inputs. The AR is always taken as 0 (“000”).

#### AR IP

Designed to allow the GPI inputs to provide the AR data as highest-bit-takes-precedence i.e. if the highest GPI input set is GPI4(bit 3 as GPI’s number 1-8)



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then the AR is taken to be 4 (“100”) irrespective of the lower GPI inputs. The AFD is always taken as 0 (“000”).

### AFD OP

Designed to allow the GPI outputs to represent the AFD data by setting the appropriate GPI and clearing all others i.e. if the AFD is 6 (“110”) then GPI6 will be set and all others cleared.

### AR OP

Designed to allow the GPI outputs to represent the AR data by setting the appropriate GPI and clearing all others i.e. if the AR is 6 (“110”) then GPI6 will be set and all others cleared.

### User Mapping Tables

In addition to the 6 built-in mapping tables the DT-2 provides 4 user mapping tables which can be named and edited using the DT-2 Setup software which can be downloaded from www.eyeheight.com and DG-9 dongle. By default these 4 tables are the same as the BYPASS built-in table.

## 1.3 Applications for the DT-2

Applications for the DT-2 include the following:-

- Re-mapping between VI, WSS UK and WSS ETSI information
- Auto-inserting different values of VI/WSS via GPI inputs
- Reconstructing and inserting VI/WSS when input VI/WSS is corrupt
- Interfacing between a video input with VI/WSS and other equipment (ARC’s, Keyers, etc) via the GPI outputs

### 1.3.1 Example Application 1 - Manual Control of WSS/VI

In this example the unit is first reset to the factory default settings and then configured to insert WSS and VI data set via the front panel.

- Power on unit then press NEXT>NEXT>Memory>NEXT>NEXT>NEXT >NEXT>NEXT>TOTAL!RESET! and wait for unit to reset (approx 10 secs)
- Press NEXT>WSS/OP Setup>Source Setup> and set ‘**Info Source**’ to ‘**Panel**’
- Press BACK>Alt-Ip Setup> and set WPn to desired WSS value to be encoded
- Press BACK>BACK>VI/OP Setup>Source Setup> and set ‘**Info Source**’ to ‘**Panel**’
- Press BACK>Alt-Ip> and set ‘**VPn**’ to desired VI value to be encoded
- Press BACK>BACK>PREV> now the display will show the WSS and VI values being decoded from ‘Video In’ and the WSS and VI values being encoded into ‘Video Out’ from the ‘Panel’ values set above



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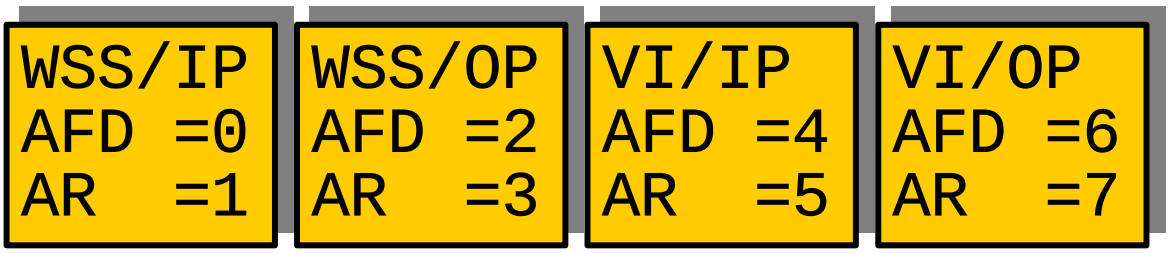


**Figure 5 Example of display showing WSS/VI data being decoded and encoded**

### 1.3.2 Example Application 2 - GPI Control of WSS/VI

In this example the unit is first reset to the factory default settings and configured to insert WSS and VI information as presented to the unit via the GPI interface as "linear" data (i.e. highest GPI active defines the data to be inserted).

- Power on unit then press NEXT>NEXT>Memory>NEXT>NEXT>NEXT >NEXT>NEXT>TOTAL!RESET! and wait for unit to reset (approx 10 secs)
- Press NEXT>WSS/OP Setup>Source Setup > and set '**Info Source**' to '**GPILn**'
- Press BACK>BACK>VI/OP Setup>Source Setup > and set '**Info Source**' to '**GPILn**'
- Press BACK>BACK>PREV> now the display will show the WSS and VI values being decoded from 'Video In' and the WSS and VI values being encoded into 'Video Out' from the current GPI's 1 thru 6. GPI1 is the LSB of the AFD, GPI3 is the MSB of the AFD. GPI4 is the LSB of the AR and GPI6 is the MSB of the AR.

### 1.3.3 Example Application 3 - GPI Control (Using Internal LUT) of Aspect Ratio (AR) in WSS/VI

In this example the unit is first reset to the factory default values and then configured to take "linear" GPI data and map it via the AR input mapping (AR IP) to insert AR data only for WSS and VI

- Power on unit then press NEXT>NEXT>Memory>NEXT>NEXT>NEXT >NEXT>NEXT>TOTAL!RESET! and wait for unit to reset (approx 10 secs)
- Press NEXT>WSS/OP Setup>Source Setup> and set '**Info Source**' to '**GPI Ln**'
- Set '**LUT**' menu to '**data 3 AR IP**'
- Press BACK>BACK>VI/OP Setup>Source Setup> and set '**Info Source**' to '**GPI Ln**'
- Set '**LUT**' menu to '**data 3 AR IP**'
- Press BACK>BACK>PREV> now the display will show the WSS and VI values being decoded from 'Video In' and the WSS and VI values being encoded into 'Video Out', with the GPI's priority encoded to control the AR value of both WSS and VI (highest GPI set will set AR e.g. if GPI 2,5 set then AR=5 or if just GPI 2 set then AR=2)



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### 1.3.4 Settings for Example Application-Using WSS to control GPI Outputs Using Internal LUT

In this example the unit is first reset the factory default settings and then configured to decode WSS data and present the resulting AR data on the GPI outputs.

- Power on unit then press NEXT>NEXT>Memory>NEXT>NEXT>NEXT >NEXT>NEXT>TOTAL!RESET! and wait for unit to reset (approx 10 secs)
- Press NEXT>WSS/IP Setup>Info Setup> and set '**GPO LUT**' to '**AR OP**'
- Press BACK>BACK>PREV> display will show WSS/VI values being decoded and encoded as normal. GPI outputs will indicate the WSS AR value that is decoded from the video input (in priority encoding e.g. for AR=5 then only GPI 5 will be activated, for AR=2 then only GPI 2 will be activated)

## 1.4 Associated Equipment for the DT-2

The DT-2 is a module and requires both a chassis and a control surface to function. In it's simplest form the system would consist of :-

- 1 off DT-2 Modules
- 1 off MX-9 maxiBox
- 1 off FP-9 flexiPanel

### 1.4.1 Chassis

There are two 1RU chassis available:-

- The most cost effective one is called the maxiBox MX-9, this can hold up to 6 DT-2 processing modules.
- The flexiBox FB-9 has optional dual redundant power supplies and allows user replacement of modules, this can also hold up to 6 DT-2 processing modules.

### 1.4.2 Control Equipment for the DT-2

There are two options available for controlling the DT-2. The available modules are:-

- A 1RU control surface that fits on the front of a maxiBox or flexiBox. This is called a flexiPanel (Order code FP-9) and provides access to the control and configuration menus as detailed in section 3.
- A desk mounting control surface (Order code FP-10). This is a 4RU version of the FP-9 above designed to be desk mounted and is functionally compatible with the FP-9 control panel.



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**Figure 1-6 flexiPanel (FP-9)**

**Figure 7 deskPanel (FP-10)**



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# 2 Installation

## 2.1 Installation of the DT-2 product

The unit can be installed in a spare slot by a user in a flexiBox (FB-9) or by Eyeheight in a maxiBox (MX-9) with an associated FP-9 or FP-10 for control.

The FP-9 and FP-10 can be used to control the DT-2 remotely. Where as the FP-9 can also be mounted on the front of the FB-9/MX-9.

For detailed information on connecting remote panels refer to the section “Connection of Remote Panels to a flexiBox” in the geNETics Hardware Installation Guide.

A diagram of the DT-2 I/O connector is shown below.

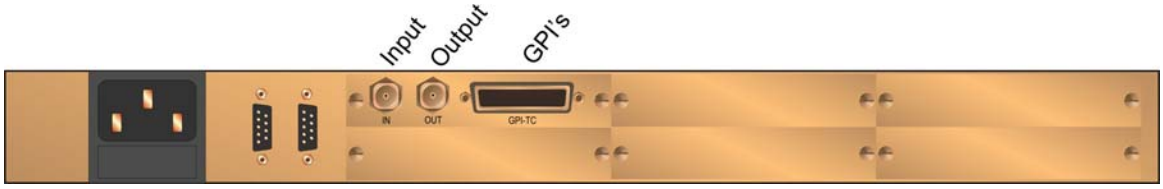


**Figure 8 DT-2 Connections**

Input and Output connectors are BNC’s.

The GPI’s connector is a 25 way DIN socket with pin outs as below.

| Pin# | Function |
|---|---|
| 1. | General Purpose Output #1a (GPO1a). Isolated Relay closure |
| 2. | General Purpose Output #1b (GPO1b). Isolated Relay closure. |
| 3. | General Purpose Output #2a (GPO2a). Isolated Relay closure |
| 4. | General Purpose Output #2b (GPO2b). Isolated Relay closure |
| 5. | General Purpose Output #3a (GPO3a). Isolated Relay closure |
| 6. | General Purpose Output #3b (GPO3b). Isolated Relay closure |
| 7. | General Purpose Output #4a (GPO4a). Isolated Relay closure. |
| 8. | General Purpose Output #4b (GPO4b). Isolated Relay closure. |
| 9. | General Purpose Output #5 (GPO5). Open Collector Output (<100mA) |
| 10. | General Purpose Output #6 (GPO6). Open Collector Output (<100mA) |
| 11. | General Purpose Output #7 (GPO7). Open Collector Output (<100mA) |



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| | |
|---|---|
| 12. | General Purpose Output #8 (GPO8). Open Collector Output (<100mA) |
| 13. | General Purpose Input #1 (GPI1). Pull to Ground to activate |
| 14. | General Purpose Input #2 (GPI2). Pull to Ground to activate. |
| 15. | General Purpose Input #3 (GPI3). Pull to Ground to activate. |
| 16. | General Purpose Input #4 (GPI4). Pull to Ground to activate. |
| 17. | General Purpose Input #5 (GPI5). Pull to Ground to activate. |
| 18. | General Purpose Input #6 (GPI6). Pull to Ground to activate. |
| 19. | General Purpose Input #7 (GPI7). Pull to Ground to activate. |
| 20. | General Purpose Input #8 (GPI8). Pull to Ground to activate. |
| 21. | RS 232 Receive |
| 22. | |
| 23. | RS 232 Transmit |
| 24. | |
| 25. | GND |



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# 3 Operation

## 3.1 Menu Control of the DT-2

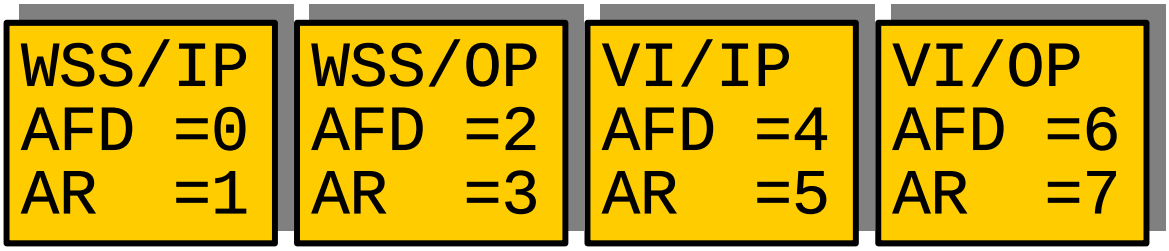
Using the FP-9 or FP-10 with the DT-2 is, as are all genetics modules, controlled using a set of **menus**. Each of these menus contains up to 3 parameters that are adjusted using the rotary 'digipots'. The Menus define all of the adjustable operational parameters in the DT-2. Pressing the rotary 'digipots' brings the parameter to its default value. Device selection is done using the device select switches which, when pressed, will offer the name of the device in the LCD Window. Modules can be acquired and then de-acquired using the set-up switch. For a full description of the operation philosophy of the geNETics system refer to the "geNETics User Guide" (section "Operation of the FlexiPanel")

A full list of the Menus and their functions are given in the following section

**Operation menus for the DT-2**

The following set of menus defines the operation of the DT-2.

**Menu 00-03: Top Level Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 00 | WSS Input | none | Shows current decoded WSS value |
| 01 | WSS Output | none | Shows current WSS value being encoded. If the WSS is in BYPASS or the inserter is switched OFF this menu goes RED. |
| 02 | VI Input | none | Shows current decoded VI value |
| 03 | VI Output | none | Shows current VI value being encoded. If the VI is in BYPASS or the inserter is switched OFF this menu goes RED. |



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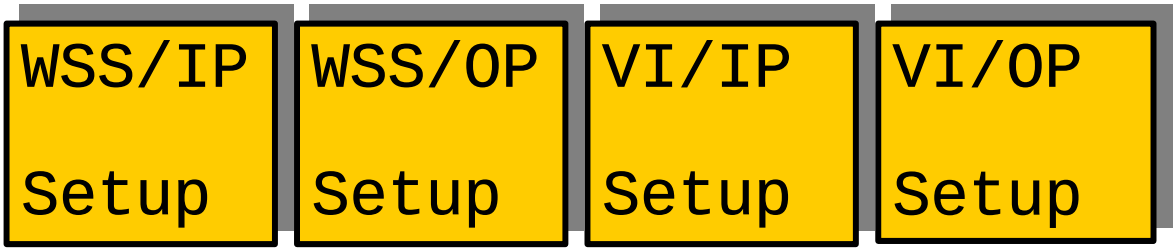
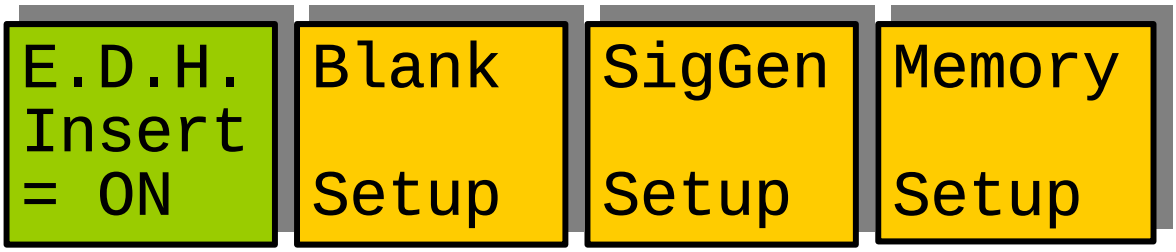
**Menu 04-07: Setup Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 04 | WSS Input Setup | none | Go to the main 'WSS Input Controls' menus (12-15) |
| 05 | WSS Output Setup | none | Go to the main 'WSS Output Controls' menus (20-23) |
| 06 | VI Input Setup | none | Go to the main 'VI Input Controls' menus (36-39) |
| 07 | VI Output Setup | none | Go to the main 'VI Output Controls' menus (44-47) |

**Menu 08-11: Utilities Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 08 | EDH Insert | 0=EDH off 1=EDH on | This controls the reinsertion of EDH onto video output. |
| 09 | Blanking | none | Go to the main 'Blanking Controls' menus (60-63) |
| 10 | Signal Generator | none | Go to the main 'Signal Generator Controls' menus (76-79) |
| 11 | Configuration Memories | none | Go to the main 'Memory Recall' menus (88-91) |



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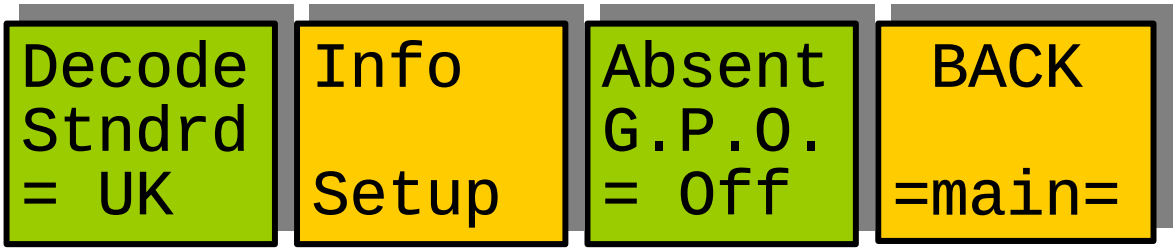
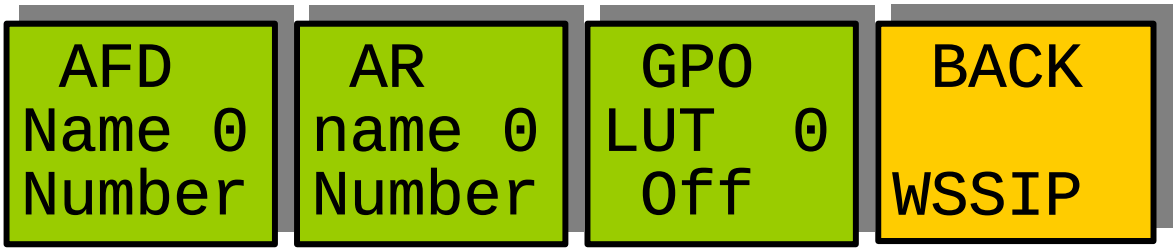
**Menu 12-15: WSS Input Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 12 | WSS Input Decoding Standard | 0=UK<br>1=ETSI | Changes the standard used to decode the incoming WSS signal |
| 13 | WSS Input Display Information | none | Go to the main 'WSS Input Info Controls' menus (16-19) |
| 14 | Absent General Purpose Output | =off→1→8 | GPI output which will activate when input WSS signal is not present/valid |
| 15 | BACK | none | Go back a level in menu structure |

**Menu 16-19: WSS Input Info Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 16 | Active Format Descriptor | 0=Number<br>1=Defined<br>2=BBC<br>3=User 1<br>4=User 2<br>5=User 3 | Digipot A<br>Selects Look Up Table held in onboard EEPROM which will change how AFD decoded from WSS is displayed in menu 00 |
| 17 | Aspect Ratio | 0=Number<br>1=Defined<br>2=ETSI<br>3=BBC<br>4=User 1<br>5=User 2 | Digipot B<br>Selects Look Up Table held in onboard EEPROM which will change how AR decoded from WSS is displayed in menu 00 |
| 18 | General Purpose | 0=Off<br>1=Bypass | Digipot C<br>Selects Look Up Table held in |



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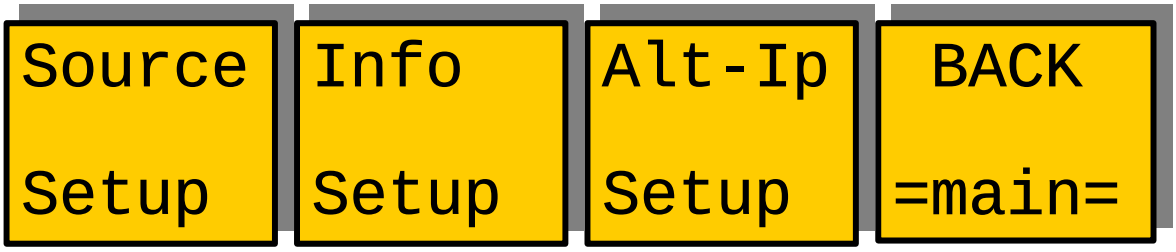
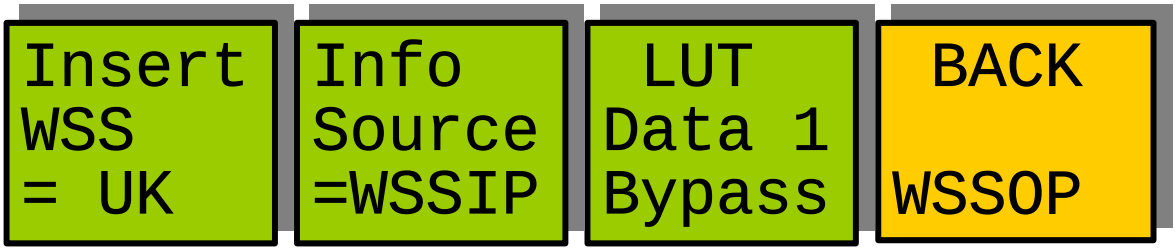
| | | | |
|---|---|---|---|
| | Outputs | 2=AFD IP<br>3=AR IP<br>4=AFD OP<br>5=AR OP<br>6=User 1<br>7=User 2<br>8=User 3<br>9=User 4 | onboard EEPROM which will change how decoded WSS will control GPO's |
| 19 | BACK | none | Go back a level in menu structure |

**Menu 20-23: WSS Output Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 20 | Source | none | Go to the main 'WSS Output Source Controls' menus (24-27) |
| 21 | Display Information | none | Go to the main 'WSS Output Info Controls' menus (28-31) |
| 22 | Alternate Source | none | Go to the main 'WSS Output Alternate Input Controls' menus (32-35) |
| 23 | BACK | none | Go back a level in menu structure |

**Menu 24-27: WSS Output Source Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 24 | Insert/ Encoding Standard | 0=Off<br>1=UK<br>2=ETSI | Digipot A<br>Enables and changes the standard used to encode the outgoing WSS signal |
| 25 | Information Source | 0=Panel<br>1=WSSIP<br>2=VI IP<br>3=RS232 | Digipot B<br>Changes the source of the data to be encoded into the outgoing WSS signal |



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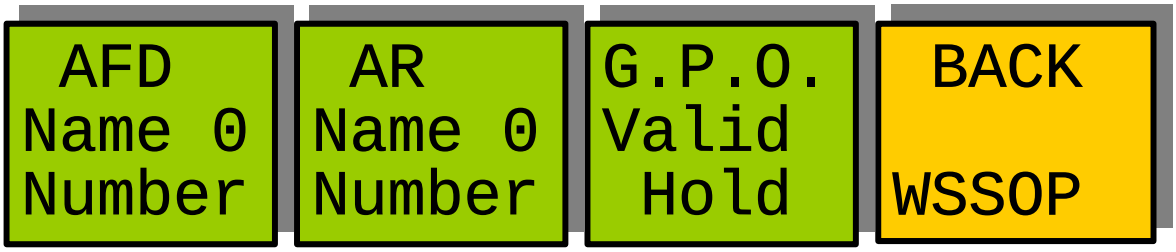
| | | | |
|---|---|---|---|
| | | 4=GPILn<br>5=GPILt | |
| 26 | Look Up Table | 0=Off<br>1=Bypass<br>2=AFD IP<br>3=AR IP<br>4=AFD OP<br>5=AR OP<br>6=User 1<br>7=User 2<br>8=User 2<br>9=User 4 | Digipot C<br>Changes the look up table held in on board EEPROM. This translates between the WSS source data (menu 25) and the actual encoded WSS data |
| 27 | BACK | none | Go to Top Level Control menus |

**Menu 28-31: WSS Output Info Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 28 | Active Format Descriptor | 0=Number<br>1=Defined<br>2=BBC<br>3=User 1<br>4=User 2<br>5=User 3 | Digipot A<br>Selects Look Up Table held in onboard EEPROM which will change how AFD encoded into the WSS is displayed in menu 01 |
| 29 | Aspect Ratio | 0=Number<br>1=Defined<br>2=ETSI<br>3=BBC<br>4=User 1<br>5=User 2 | Digipot B<br>Selects Look Up Table held in onboard EEPROM which will change how AR encoded into the WSS is displayed in menu 01 |
| 30 | General Purpose Outputs Release / Hold | 0=Releas<br>1=Hold | Will hold last valid GPI output values even if WSS is absent when set to 'Hold'. When set to 'Releas' then GPI outputs will only be active when WSS is present |
| 31 | BACK | none | Go back a level in menu structure |



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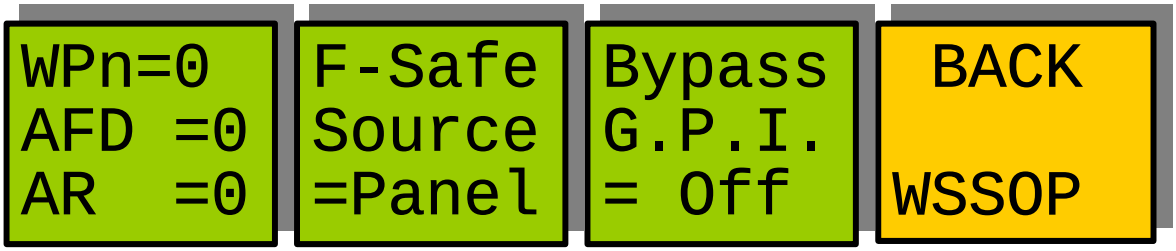
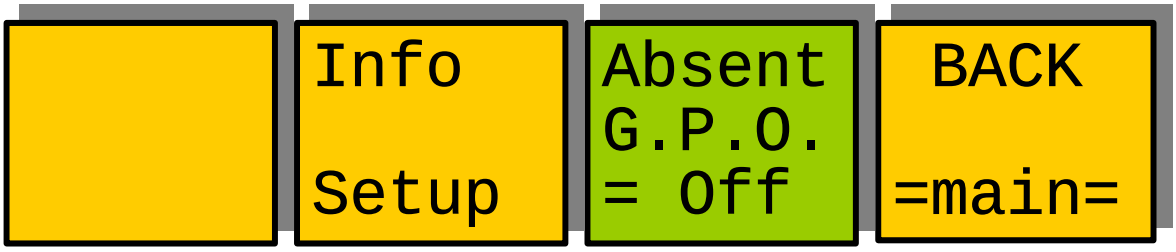
**Menu 32-35: WSS Output Alternate Input Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 32 | WSS Panel Setting | 0→63 | Digipot A<br>Sets panel input value for encoding into WSS when menu 25 is set to 'Panel' |
| 33 | Fail Safe Source | 0=Panel<br>1=WSSIP<br>2=VI IP<br>3=RS232<br>4=GPILn<br>5=GPILt | Digipot B<br>Sets source for WSS encoding when input video signal is missing |
| 34 | Bypass GPI Number | =off→1→8 | Digipot C<br>Enables and sets the GPI number which will put WSS encoder into bypass mode (disabled) |
| 35 | BACK | none | Go back a level in menu structure |

**Menu 36-39: VI Input Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 36 | none | none | none |
| 37 | VI Input Display Information | none | Go to the main 'VI Input Info Controls' menus (40-43) |
| 38 | Absent General Purpose Output | =off→1→8 | GPI output which will activate when input VI signal is not present/valid |
| 39 | BACK | none | Go back a level in menu structure |



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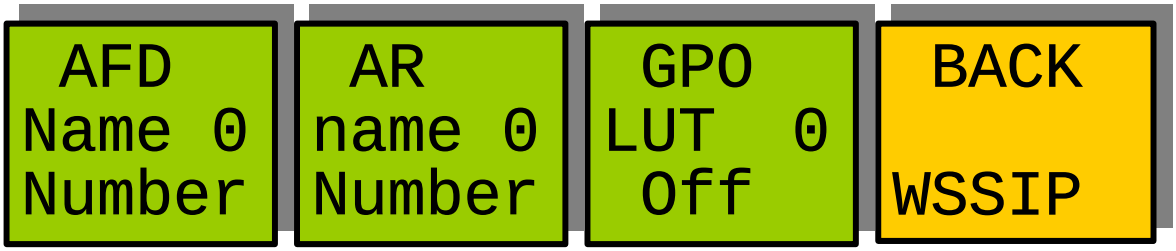
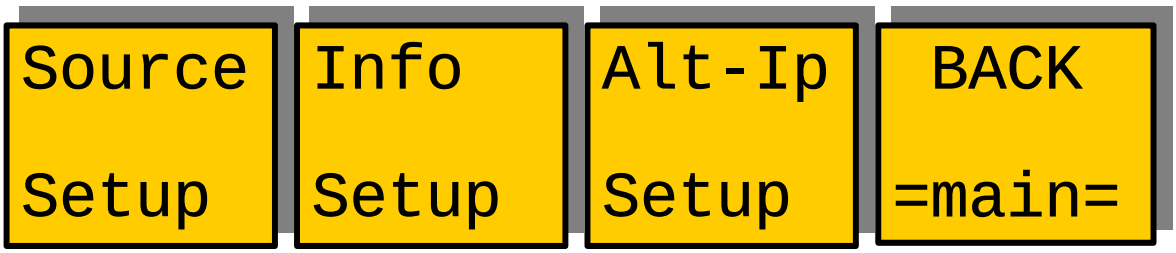
**Menu 40-43: VI Info Input Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 40 | Active Format Descriptor | 0=Number<br>1=Defined<br>2=BBC<br>3=User 1<br>4=User 2<br>5=User 3 | Digipot A<br>Selects Look Up Table held in onboard EEPROM which will change how AFD decoded from VI is displayed in menu 02 |
| 41 | Aspect Ratio | 0=Number<br>1=Defined<br>2=ETSI<br>3=BBC<br>4=User 1<br>5=User 2 | Digipot B<br>Selects Look Up Table held in onboard EEPROM which will change how AR decoded from VI is displayed in menu 02 |
| 42 | General Purpose Outputs | 0=Off<br>1=Bypass<br>2=AFD IP<br>3=AR IP<br>4=AFD OP<br>5=AR OP<br>6=User 1<br>7=User 2<br>8=User 3<br>9=User 4 | Digipot C<br>Selects Look Up Table held in onboard EEPROM which will change how decoded VI will control GPO's |
| 43 | BACK | none | Go back a level in menu structure |

**Menu 44-47: VI Output Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 44 | Source | none | Go to the main 'VI Output Source Controls' menus (48-51) |



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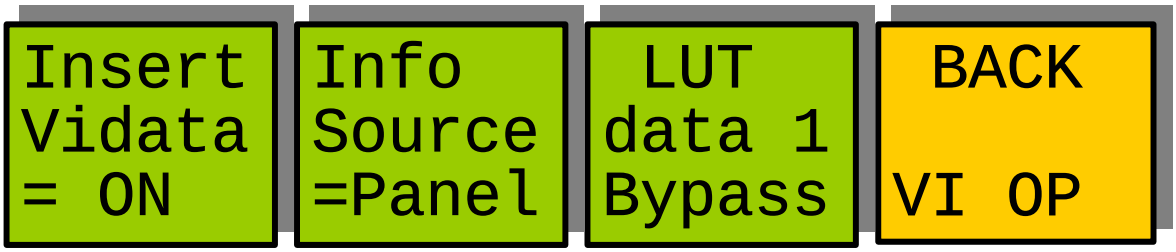
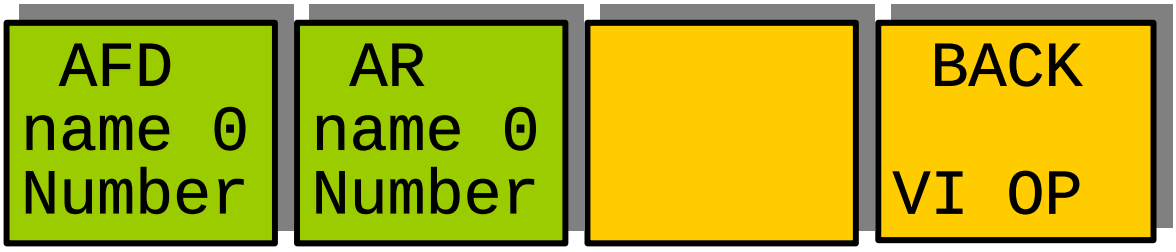
| | | | |
|---|---|---|---|
| 45 | Display Information | none | Go to the main 'VI Output Info Controls' menus (52-55) |
| 46 | Alternate Source | none | Go to the main 'VI Output Alternate Input Controls' menus (56-59) |
| 47 | BACK | none | Go back a level in menu structure |

**Menu 48-51: VI Output Source Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 48 | Insert VI Data | 0=Off<br>1=On | Digipot A<br>Controls whether VI is encoded onto video signal |
| 49 | Information Source | 0=Panel<br>1=WSSIP<br>2=VI IP<br>3=RS232<br>4=GPILn<br>5=GPILt | Digipot B<br>Changes the source of the data to be encoded into the outgoing WSS signal |
| 50 | Look Up Table | 0=Off<br>1=Bypass<br>2=AFD IP<br>3=AFD OP<br>4=AR OP<br>5=User 1<br>6=User 2<br>7=User 2<br>8=User 4 | Digipot C<br>Changes the look up table held in on board EEPROM. This translates between the WSS source data (menu 25) and the actual encoded WSS data |
| 51 | BACK | none | Go back a level in menu structure |

**Menu 52-55: VI Info Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 52 | Active | 0=Number | Digipot A |



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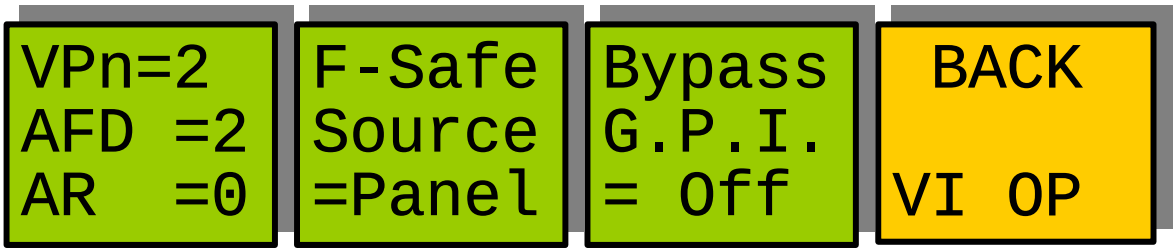
| | | | |
|---|---|---|---|
| | Format Descriptor | 1=Defined<br>2=BBC<br>3=User 1<br>4=User 2<br>5=User 3 | Selects Look Up Table held in onboard EEPROM which will change how AFD encoded into the VI is displayed in menu 03 |
| 53 | Aspect Ratio | 0=Number<br>1=Defined<br>2=ETSI<br>3=BBC<br>4=User 1<br>5=User 2 | Digipot B<br>Selects Look Up Table held in onboard EEPROM which will change how AR encoded into the VI is displayed in menu 03 |
| 54 | General Purpose Outputs Release / Hold | 0=Releas<br>1=Hold | Will hold last valid GPI output values even if VI is absent when set to 'Hold'. When set to 'Releas' then GPI outputs will only be active when VI is present |
| 55 | BACK | none | Go back a level in menu structure |

**Menu 56-59: Alternate Input Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 56 | VI Panel Setting | 0→63 | Digipot A<br>Sets panel input value for encoding into VI when menu 45 is set to 'Panel' |
| 57 | Fail Safe Source | 0=Panel<br>1=WSSIP<br>2=VI IP<br>3=RS232<br>4=GPILn<br>5=GPILt | Digipot B<br>Sets source for VI encoding when input video signal is missing |
| 58 | Bypass GPI Number | =off→1→8 | Digipot C<br>Enables and sets the GPI number which will put VI encoder into bypass mode (disabled) |
| 59 | BACK | none | Go back a level in menu structure |



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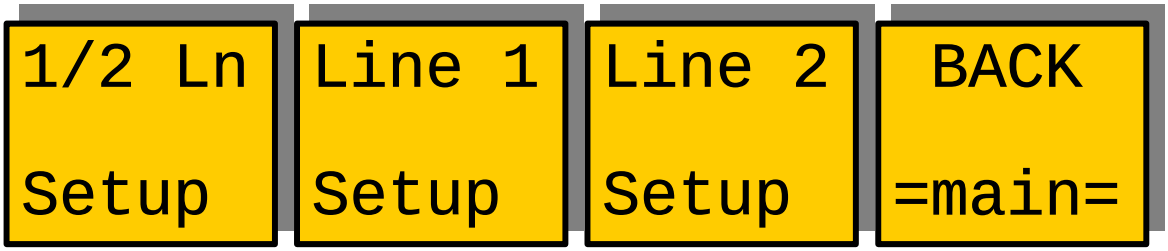
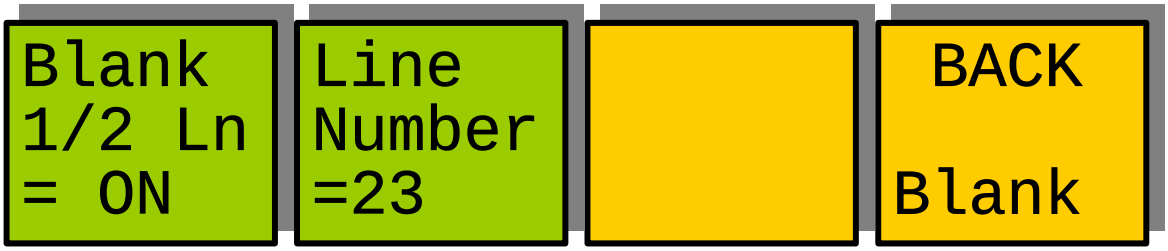
**Menu 60-63: Blanking Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 60 | ½ Line Blanking Setup | none | Go to the main '1/2 Line Blanking Controls' menus (64-67) |
| 61 | Line 1 Blanking Setup | none | Go to the main 'Line 1 Blanking Controls' menus (68-71) |
| 62 | Line 2 Blanking Setup | none | Go to the main 'Line 2 Blanking Controls' menus (72-75) |
| 63 | BACK | none | Go back a level in menu structure |

**Menu 64-67: 1/2 Line Blanking Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 64 | ½ Line Blanking | 0=Off<br>1=On | Digipot A<br>On/Off control of ½ line blanking |
| 65 | Line Number | 1→625 | Digipot B<br>Line number ½ line blanking is applied to |
| 66 | none | none | |
| 67 | BACK | none | Go back a level in menu structure |



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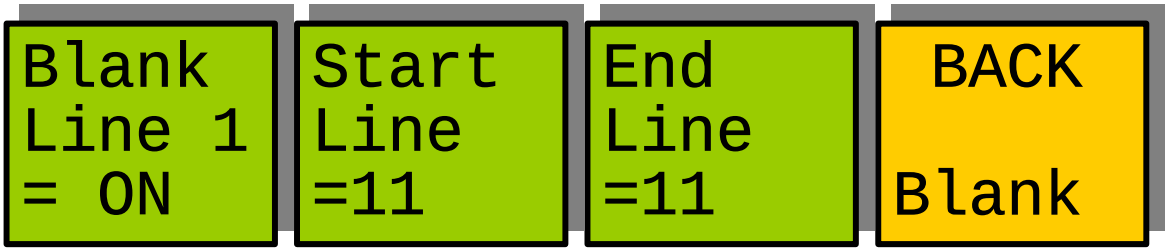
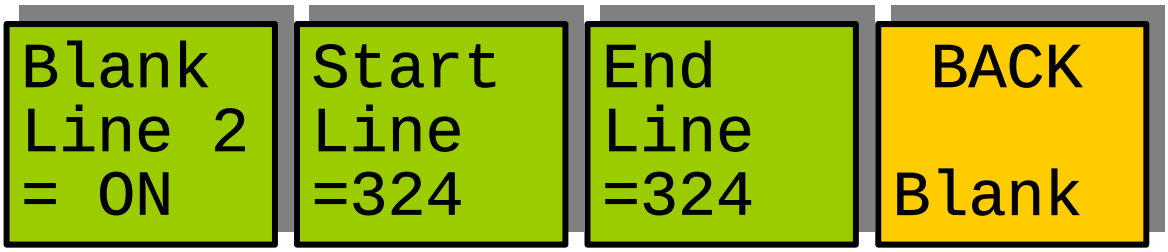
**Menu 68-71: Line 1 Blanking Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 68 | Line 1 Blanking | 0=Off<br>1=On | Digipot A<br>On/Off control of line 1 blanking |
| 69 | Start Line Number | 1→625 | Digipot B<br>Line number line 1 blanking block starts |
| 70 | End Line Number | 1→625 | Digipot C<br>Line number line 1 blanking block ends |
| 71 | BACK | none | Go back a level in menu structure |

**Menu 72-75: Line 2 Blanking Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 72 | Line 2 Blanking | 0=Off<br>1=On | Digipot A<br>On/Off control of line 2 blanking |
| 73 | Start Line Number | 1→625 | Digipot B<br>Line number line 2 blanking block starts |
| 74 | End Line Number | 1→625 | Digipot C<br>Line number line 2 blanking block ends |
| 75 | BACK | none | Go back a level in menu structure |



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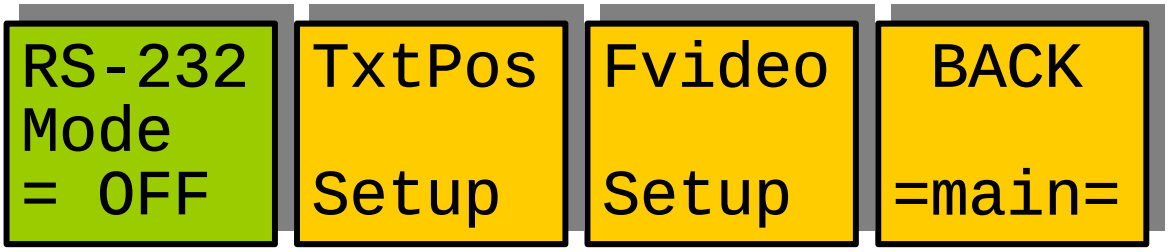
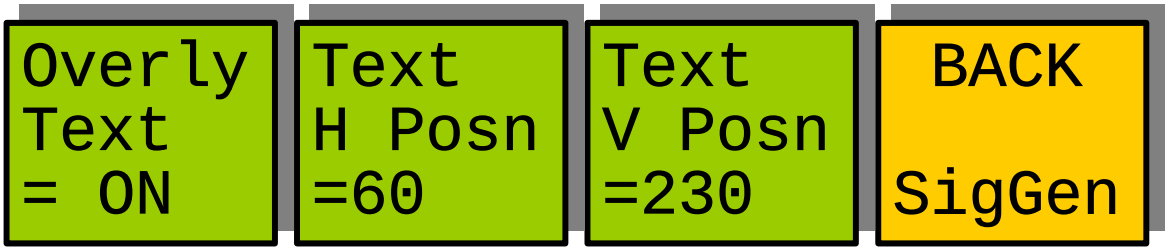
**Menu 76-79: Signal Generator Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 76 | RS 232 Serial Port | 0=Off<br>1=WSS<br>2=VI | Digipot A<br>Controls operation of RS232 port on 25 pin DIN connector |
| 77 | Text Position | none | Digipot B<br>Go to the main 'Text Position Blanking Controls' menus (80-83) |
| 78 | Failure Video Settings | none | Digipot C<br>Go to the main 'Failure Video Controls' menus (84-87) |
| 79 | BACK | none | Go back a level in menu structure |

**Menu 80-83: Text Position Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 80 | Text Overlay Control | 0=Off<br>1=On<br>2=Blk<br>3=All | Digipot A<br>Controls look and visibility of text ovelay |
| 81 | Text Horizontal Position | 0→768 | Digipot B<br>Controls horizontal position of text |
| 82 | Text Vertical Position | 0→625 | Digipot C<br>Controls vertical position of text |
| 83 | BACK | none | Go back a level in menu structure |



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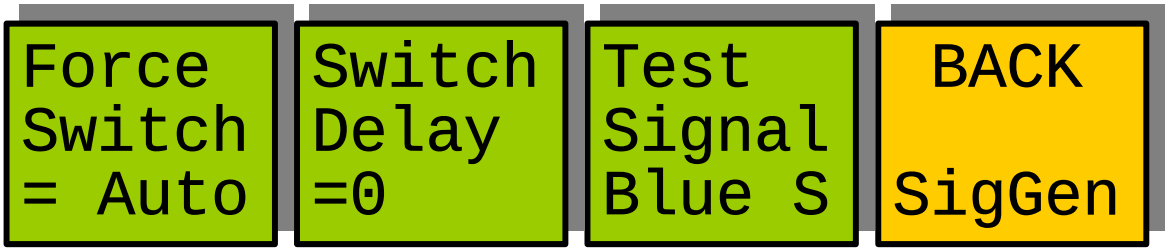
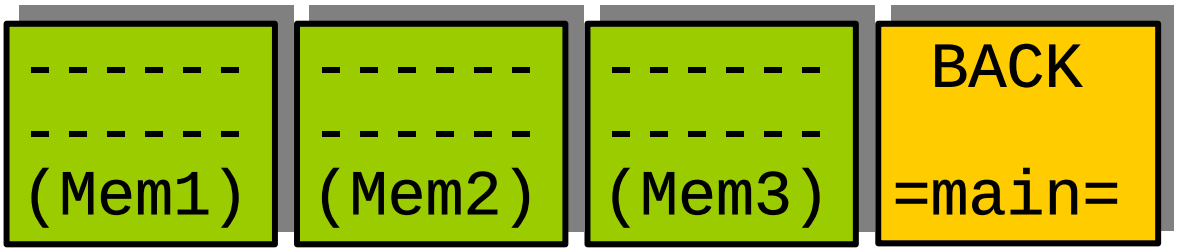
**Menu 84-87: Failure Video Controls**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 84 | Failure Switch Control | 0=Auto<br>1=Test | Digipot A<br>Manual override of failure switch |
| 85 | Switch Delay | 0→625 | Digipot B<br>Delay of failure switch in lines. |
| 86 | Test Signal Generator Output | 0=Y Ramp<br>1=Cb Ramp<br>2=Cr Ramp<br>3=YCrCb Ramp<br>4=Pathalogical<br>5=0/3 Split<br>6=Blue Screen<br>7=Bars | Digipot C<br>Controls output pattern of signal generator in failure switch |
| 87 | BACK | none | Go back a level in menu structure |

**Menu 88-91: Memory Recall**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 88 | MEM1 | 1 recalls memory | Recalls configuration memory 1 |
| 89 | MEM 2 | 1 recalls memory | Recalls configuration memory 2 |
| 90 | MEM 3 | 1 recalls memory | Recalls configuration memory 3 |
| 91 | BACK | none | Go back a level in menu structure |



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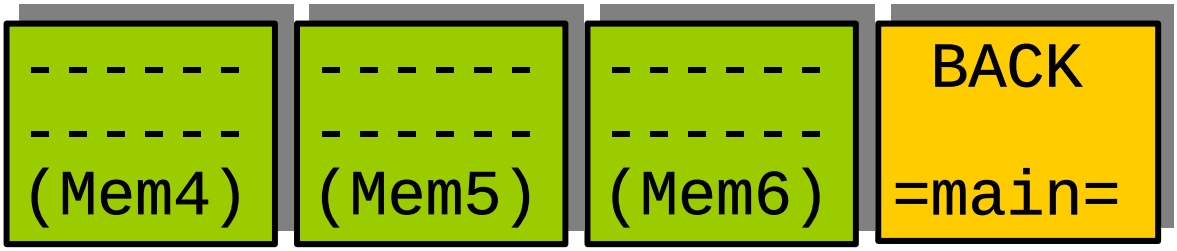
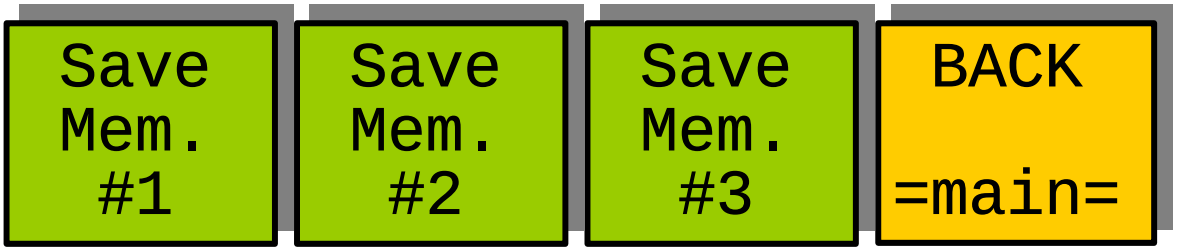
### Menu 92-95: Memory Recall




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 92 | MEM 4 | 1 recalls memory | Recalls configuration memory 4 |
| 93 | MEM 5 | 1 recalls memory | Recalls configuration memory 5 |
| 94 | MEM 6 | 1 recalls memory | Recalls configuration memory 6 |
| 95 | BACK | none | Go back a level in menu structure |

### Menu 96-99: Memory Save




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 96 | SAVE MEM1 | 1 saves configuration | Saves current configuration as memory 1 |
| 97 | SAVE MEM2 | 1 saves configuration | Saves current configuration as memory 2 |
| 98 | SAVE MEM3 | 1 saves configuration | Saves current configuration as memory 3 |
| 99 | BACK | none | Go back a level in menu structure |



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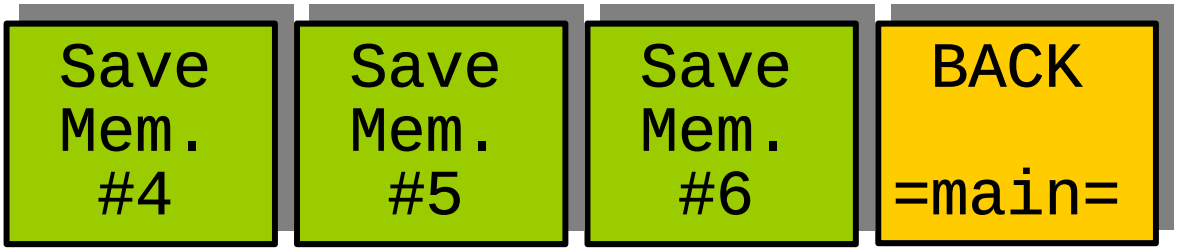
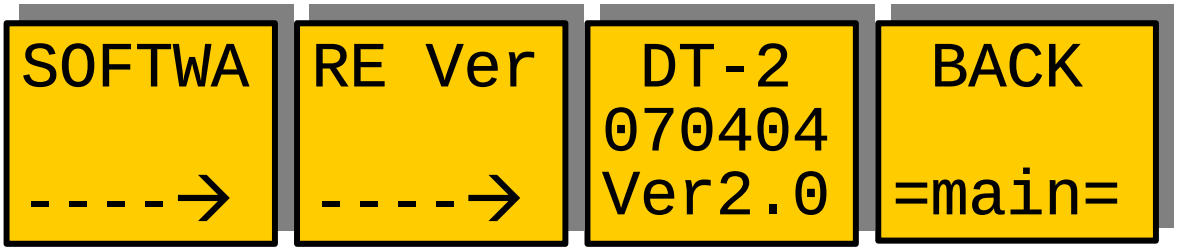
**Menu 100-103: Memory Save**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 100 | SAVE MEM4 | 1 saves configuration | Saves current configuration as memory 4 |
| 101 | SAVE MEM5 | 1 saves configuration | Saves current configuration as memory 5 |
| 102 | SAVE MEM6 | 1 saves configuration | Saves current configuration as memory 6 |
| 103 | BACK | none | Go back a level in menu structure |

**Menu 104-107: Power On Memory**




| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 104 | Save Power On Memory | 1 to save memory | Saves current configuration as Power On memory. |
| 105 | Recall Power On Memory | 1 to recall memory | Recalls the Power On memory configuration. |
| 106 | "Total Reset ". | 1 to cause Total Reset | This puts all current and power on default settings to the factory default |
| 107 | BACK | none | Go back a level in menu structure |



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**Menu 108-111: Power On Memory**

| Menu Num. | Heading | Automation | Function |
|---|---|---|---|
| 108 | Save Power On Memory | 1 to save memory | Saves current configuration as Power On memory. |
| 109 | Recall Power On Memory | 1 to recall memory | Recalls the Power On memory configuration. |
| 110 | "Total Reset ". | 1 to cause Total Reset | This puts all current and power on default settings to the factory default |
| 111 | BACK | none | Go back a level in menu structure |



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# 4 Technical Appendix

## 4.1 Technical Specification for the DT-2

| | |
|---|---|
| Number of Inputs | 1 |
| Type of Inputs | 270Mbit Serial Digital Video Inputs 75 Ohm |
| Line Length | At least 200 Meters of PSF1/3 (Typically 275 Meters) |
| Number of Outputs | 1 Output BNC's per Card (Configurable). |
| Type Of Outputs | 270Mbit Serial Digital Video Outputs, 75 Ohm, 800mV |
| Total Number Of BNC Connections | 2, consisting of 1 Inputs and 1 output. |
| SDI Output Jitter | The system will add less than 0.2UI to the input Jitter. (This is only guaranteed on issue 2 or later cards) |
| Current Consumption | <800mA at +5V |
| Size | 215mm by 100mm |



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